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The Voice as an Instrument.

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"*Although nature has gifted us all with voices, yet, correct singing is the result of art and study.*"

These words of Aristotle, the Grecian philosopher, were not more true two thousand years ago than they are at the present day. Even now the truth of this observation is neither understood and admitted in theory, nor recognised in practice; for, any person who is gifted by nature with a fair voice, is generally considered capable of being a singer, without special study of the vocal organs; and even without special training in the art of musical expression. How much time, indeed, do singers generally devote to studying, scientifically and practically, the wonderful mechanism of their voice? How much serious study do even the teachers of vocal music give to the cultivation of their own voices?

And how many of them are capable of accounting scientifically for the most common defects in the human voice?

Few indeed is the number of those who are capable of removing the defects of an unnatural voice by the employment of appropriate and well directed efforts, or of restoring such a voice to natural beauty by the use of scientific methods. Instead of being guided by positive knowledge in the cultivation of the voice, teachers are too often obliged to rely upon the uncertain results of a very miscellaneous preparation. In many cases the notions upon which their teaching is based have never been subjected to a scientific analysis.

In short, the fact which was announced two thousand years ago, that correct singing is the result of art and study, is generally ignored to-day; and this explains our slight progress in the most enjoyable of all the arts, and accounts for the low standard of vocal culture everywhere.

Names eminent in other arts, or distinguished in other sciences than vocal culture, are not few in number, yet those who have judiciously mastered the mechanism of the human voice, who by diligent attention to their art, have obtained perfect control of their voices, and who therefore may justly be regarded as great vocal interpreters, are so few in number, that they may be counted upon your fingers; their names are familiar to all of you. They are capable of rendering in song every emotion of the human soul.

But do you object that a perfectly cultivated voice is not essential to singing? Then let me ask, does not the effect to be obtained in the instrumental rendering of a musical composition depend mainly upon the quality of the instrument? And how many a singer, though possessed of a soul overflowing with grand aspirations, and though yearning to utter them in glorious song, is forever precluded from that high privilege by the meagreness, or defective qualities of that instrument, his own voice?

It is intended at the present time, to speak of the *technique* and practical use of the voice, regarded as an instrument of vocal utterance; from which will perhaps appear the truth of the words above quoted, namely, that the correct use of the voice is the result of art and study.

Let us examine the mechanism of our instrument, and let us consider what manner of using the same is proper, natural and correct; also, what manner and methods are not so. Then will appear the pleasant and healthful results of using that instrument aright, as well as the injurious and disastrous consequences of abusing it.

An exhaustive consideration of the aesthetics of our art, and a technical and anatomical examination of the structure and hygiene of the vocal organs are alike foreign to our present purpose. For fuller treatment of these subjects, reference may be had to the standard special treatises.

In what does the vocal machinery chiefly consist?

It is naturally divided into four parts:

Firstly—The motive power, or breath;

Secondly—The larynx, which forms the tone;

Thirdly—The pharynx, which colors the tone;

Fourthly—The organs of articulation.

The air supply and motive power of the voice is breath. The levers which control this motive power are the diaphragmatic and abdominal muscles, which act on the base of the lungs, and thus are instrumental in holding and regulating the breath during the process of expulsion in singing. A breath for singing is normal, or natural and hygienic, when its central expansion is at the waist. It is the exaggerated breath of sleep, or of perfect repose. If you will quietly and slowly sip the air through your lips, without lifting your shoulders, you will feel your waist expanding, and you will thus illustrate the natural breath for singing.

It follows from this, not only that singers

should secure freedom of dress and motion about the throat and neck, but also and particularly that they should give free play to the base of the lungs. They should scrupulously and always allow room for the expansion and development of the lungs, and I attribute to no other cause, than the neglect of this simple precept, the fact, that many lady singers breathe from the upper chest, instead of from the diaphragm. Breathing diaphragmatically, or abdominally. fills the lungs to their full capacity, and by this means not only develops and strengthens the lungs themselves, but also exerts a most salutary influence upon the general health.

A very simple but effective breathing exercise is as follows: your watch in hand, sip the air as slowly as possible through your lips, till the lungs are filled; hold the breath in your lungs as many seconds as it took to fill them, and exhale during the same length of time, as was occupied by the inhalation. This should be repeated,

once or twice only, before each meal, and in a moderately warm atmosphere.

An abnormal, or unnatural mode of breathing manifests itself by a muscular uplifting of the shoulders in the case of gentlemen; and in the case of ladies, by the elevation and expansion of only the upper part of the chest. Singers who breathe in this spasmodic manner, fail to have sufficient breath for easy phrasing, and appear to be, as they really are, always out of breath.

Another mode of breathing involves audible inspiration. This method is faulty and defective; excepting for certain dramatic purposes. It does not fill the lungs, but dries the throat, and thereby roughens the voice.

A third defective mode of breathing consists in expelling the air from the lungs before they have been filled to their base, and in doing this by a muscular and almost spasmodic action of the diaphragm alone. This action of the abdominal muscles is

produced by an effort to inhale an excessive quantity of air. When on the other hand, breathing is natural and deep, the diaphragmatic muscles are expelled and forced downward; then, in their return upward, they close upon the base of the lungs, and in this manner assist the singer to expel the breath at will during the act of singing.

Correct breathing, indeed, is the foundation of good singing, and the excessive use of breath is the great and almost universal cause of bad singing. It is needless to observe, that in this connection the terms good and bad singing have reference only to the quality of the tone. It is therefore important to learn how to sing with as little breath as possible, and without wasting breath; and although it is important to know how to fill the lungs to their utmost capacity, but always naturally, yet, it is equally necessary to know how to hold back the breath and regulate it, at the diaphragm.

When this point is practically under-

stood, it will soon be apparent to the singer, how much the discriminating use of breath contributes towards the control of the voice.

For the purposes of song and speech, breath should be inhaled through both mouth and nostrils, and never through the nostrils alone. Neither should singers use their voices for any considerable length of time immediately after meals, nor whilst the body is greatly fatigued. The proper time for vocal exercises is before meals, or at any time after digestion is accomplished. Singing or speaking should always take place in a moderately warm atmosphere, and should always be avoided in a cold room or in the cold out-door air. Imprudence in this regard has not unfrequently resulted in lung fever and kindred complaints.

The diaphragmatic, or abdominal breathing and singing, here described, constitute, when rightly understood and judiciously practised, a mode of physical exercise at

once most rational and healthful. No other gymnastics develop the chest so directly and naturally, or invigorate the whole trunk of the body so promptly. This regular and gradual filling and emptying of the lungs more and more increases their capacity and enables them to receive more abundantly their requisite purifying element, oxygen. Suppose, if you please, that there are five degrees of lung expansion, and that ordinary breathing is of the first degree; if now by gradual and normal lung development during the process of vocal gymnastics, we are enabled to attain the fifth degree, we shall thereby furnish the lungs with a five-fold quantity of oxygen, the purifying agent of the blood; and why should we not attain a five-fold measure of health and strength? Moreover, the normal muscular development of the chest must, of itself, necessarily stimulate to healthier action, not the lungs alone, but the whole inner trunk of the body. The same proper exercise will frequently ward

off serious diseases of the respiratory organs, and will avert disturbances of such other internal organs as are brought into activity thereby.

Before this happy result can be attained, however, the process of unfolding the throat muscles, and widening of the vocal tube, hereafter to be described, must be fully accomplished.

The expansion of tone in singing is the expelling of more or less of the breath, or vibrating medium. Now, the throat is so to be trained as never to resist the free passage of the vibrating breath, as expelled by diaphragmatic action.

Having thus examined the motive power of the voice, let us turn our attention to the practical operation of the organ that is impelled by that power, namely: the vocal membrane or chords situated in the larynx, or Adam's apple; here, and here alone, all vocal sound originates.

It is a well-known physiological fact, that the larynx contains two ribbons or

chords, whose edges, contracting and approaching each other, are set in vibratory motion whenever the breath is expelled from the lungs for the purpose of singing. This action of the vocal chords may be compared to what takes place at the lips of the cornet player. The epiderm of both lips is detached, and the breath which is forced through them, sets them in vibratory motion, and thus a sound is produced in the cornet. The closer the lips, or the smaller the aperture or opening of the lips, the higher the tone, and vice-versa.

Just as the lungs are twice useful in their operation; firstly in supplying the blood with oxygen, its purifying agent, and secondly in enabling us to use this same breath, outward bound, for the purpose of singing or speaking; so, the vocal chords perform a double work, both that of giving the tone or sound, and also that of producing the interval with the same mechanism. In this particular the voice differs from, and is superior to all other instruments.

The latter are provided with keys, or they change position to find their tones. But the voice has no perceptible keys, nor does it, like stringed instruments, change position. The same breath produces a succession of intervals without change of the vocal tube or throat. This very important point in the use of the voice is almost universally ignored. Few singers, indeed, are sufficiently acquainted with the vocal machinery to allow the vocal ligaments their full freedom of action. On the contrary, by a superfluous and injurious effort to produce both tone and interval, they both impair the one and destroy the other. Precisely in this form of reverse action of the throat, that is by preventing the natural downward motion and oscillation of the larynx and tracheal pipe, lies the real cause of the laryngitis, so prevalent among those singers, speakers, teachers, and preachers, who are ignorant of the normal use of the throat muscles.

In the emission of a tone or sound, there

is a beginning which is called intonation; it is the attack, or striking of the sound. The vocal ligaments, or chords, impelled by the action of the breath, must perform this work alone, without the interference of the pharyngeal or throat muscles. The attack, or intonation, therefore, is the setting of the vocal chords in right position for the utterance of the intended sound. The vocal chords assume this position by instinct, so to speak, and without particular volition. The sound itself, when it is struck, ought always to be felt at the diaphragm, the movement of which should mark the expenditure of breath during the act of prolonging or sustaining a tone, in much the same manner as the lever of the organ-bellows, or rather the bellows itself, indicates by its sinking motion, the escape of air while the organ is played. And as the perfection of an organ-tone would be perceptibly impaired by the escape of air in the wind-chest, so the singer would impair the tones of his voice, did he allow part of

that breath, which should complete the requisite number of vibrations essential to a perfect musical sound, to escape unvocalized. The neat and proper intonation or attack of the first note of a musical phrase, as well as all intervening tones, is an accomplishment not less beautiful than necessary to any singer. It should be done almost as easily as the alighting of the eye upon a visible object.

There is a defective form of intonation which is frequently heard, not only in our parlors and concert rooms, but also in our churches. It consists in sliding or feeling for one or several notes of a musical phrase of song. Now, slurring is exceptionally admissible in singing for the purpose of ornamentation, or to express exceptional emotion, yet, like other ornaments, should be sparingly employed.

Slurring, however, is a favorite indulgence with singers of a certain grade of musical taste and culture. Another defective mode of attack is spasmodic, and not un-

like the act of coughing; it is needless to observe that this method of lacerating the throat is highly injurious to the throat and voice.

Any person who has been so unfortunate as to acquire that nervous hack or cough, which is often heard as a preliminary to singing, speaking or reading, should abandon the same as an injurious habit, productive of constantly increasing irritation of the throat and consequent roughening of the voice. Lubrication of the throat by swallowing the secretions of the mouth, is a far more efficient means of allaying local irritation than any amount of coughing.

Now, while we are taking breath, and indeed, at all times when the voice is not in actual exercise, these vocal ribbons lie separated from each other and in a state of repose, leaving the aperture between them wide open; but when we are about to emit a vocal sound, these ribbons immediately and instinctively close towards each other

and shut off the breath; the escape of which is then regulated and controlled by the action of the diaphragm. The edges of the vocal membranes are thus thrown into the vibratory movement by which sound is produced. In forming the lower tones, the vocal membranes are much relaxed, but in ascending the scale, they gradually shorten, stiffen and approach each other. The singer should allow the vocal ligaments to perform their work naturally and instinctively. After the requisite quantity of breath is supplied, the vocal chords may safely be left without muscular interference.

Few indeed are the singers who practically allow the vocal membrane to act with the freedom here described. On the contrary, either through ignorance of the wonderful delicacy and perfection of the instrument with which they operate, or through culpable disregard of the dangers attendant upon interference with its accurate adjustments, singers, by the reverse action of the

throat muscles, and by forcing too much breath upon the vocal chords, often induce by a partial paralysis of the latter, a total inability to render in a smooth or *legato* manner any vocal sound or any musical phrase, however simple. Hence is produced a certain rolling, scraping, jumping or rasping tone in the execution of a running passage, such as scales, *arpeggios*, etc., such as would not be tolerated for a single moment in any instrumental performance whatever.

Apart from the mere production of tone, indeed, the features that distinguish artistic from inartistic performance, are universally conceded to be smoothness of quality, neatness of communication, the graceful and fluent attachment of one interval to another, and that sustained continuance of tone, which enables the performer to increase, diminish and vary its quantity at pleasure. Any singer who does not clearly and practically understand this peculiarity of the voice, will never be able to sing evenly and smoothly.

The captivating beauty of Nillson's and Santley's execution in singing is to be attributed in large part to exceptional freedom in the action of the vocal membrane. Yet how few are the voices, even of the so-called cultivated and educated singers of to-day, which do not exhibit spots and defects here and there; it not unfrequently happens that one and the same voice presents, in its lower, higher or intermediate tones, such a diversity in the quality and general nature of the sounds produced, as to create the illusion that the latter proceed from several different throats. The tone to be discovered and established in the voice of the singer is that which is full or round, but free from all reversive defects, and all abnormal throat action. To discover and establish this tone, which is the essence of the voice, is a process calculated to test the patience and skill of the master, as well as the intelligence and perseverance of the scholar. Next and consequently that tone should acquire mellowness, a quality of voice,

which betokens ease and normal action of the throat muscles. From these two preceding qualities of tone, namely roundness and mellowness, springs the ringing clearness and power. The correct tone, therefore, is not only felt in the throat of the singer, by the absence of all unpleasant local sensations, but it is promptly distinguished by the musical ear.

The main object of voice-building is to train the vocal machinery to correct action, and the attention of the pupil should at first be wholly directed toward acquiring full control of the mechanism of his voice. This he must possess before his voice will evince the essential characteristics of a perfect musical instrument. During the process of this part of vocal studies, the pupil should not be troubled with notes, and all vocal exercises should be very simple and readily caught by the musical ear.

There are many shades of tone, it is true, more or less approximating to the perfectly scientific tone, capable of acoustic analysis

before described, yet seldom or never, do we hear a voice, even in this country distinguished for beautiful voices, which exhibits throughout its whole compass that even fullness and clearness which we look for in a perfect musical instrument; a fullness which is to be preserved in the *diminuendo* of any single note of the voice.

Now if we justly look for beauty and finish of tone in a manufactured instrument, how much more justly may we expect to discover those characteristics in the human voice, the king of all instruments? These qualities of tone would be more common among singers, than they are, if it were not for the prevalent neglect of scientific and correct vocal culture. This neglect indeed is easily explained, by the inadequate conceptions, which are entertained by teachers as well as learners, respecting the measure of improvement of which the human voice is susceptible under proper culture.

The untutored voice is an unpolished diamond. It hides a beauty, which, if only a

skilful hand be applied to it, will shine forth in sparkling song.

In order to render the voice a perfect instrument, the singer must next possess a clear and practical idea of that part of the vocal apparatus which lies above the larynx, and which is called the pharynx, vocal tube, or throat proper. While the quality of voice mainly depends on the general build of the whole vocal apparatus, including the larynx, the pharynx and the cavities of the mouth, still the pharynx, or the passage way of the voice, effects and determines more particularly the coloring of the voice. It is in the pharynx that the difficulty of controlling the voice originates; the tongue, that unruly member, lies there, and possesses a wonderful facility for obstruction. This vocal tube, indeed, by its remarkable facility of contraction, expansion and other variation, largely determines the nature and quality of every tone produced. The singer, therefore, will not be a master of his instrument, until he can pro-

duce at will, the several forms, positions, movements and degrees of tone expansion of which the muscles of his own pharynx are capable. It is clear, therefore, that the great study of the singer is to obtain voluntary control of the various pharyngeal conditions. Nothing else will enable him to bring his throat within the definition of a perfect musical instrument; by no other means will he be able to give to his throat an unalterable oneness of shape, in analogy with other instruments, such as the flute, the organ-pipe, etc. Remember, however, that the human voice must always remain the king of all musical instruments, as far as elasticity of tone is concerned. The process of working out this desirable and absolutely essential result is termed "Education of the voice, voice-building or tone-forming." And no singer can accomplish much towards attaining this result without the guidance of a competent instructor. The mystery of vocal training or voice-building consists in a reformation of the

throat. The throat of a singer that has not used his voice correctly, must gradually be changed even in appearance and build. During the act of singing, the adjacent muscles of the pharynx governing tone, must be so intelligently controlled, that the rays of vibration, starting from the vocal membranes in the larynx below, shall pass unobstructed, up through the vocal tube of the pharynx, to the upper cavity of the mouth. There, above the upper teeth, is the reception room of the voice.

When the pupil has learned practically to allow to the larynx a free and generous downward motion, when he no longer hinders the arch with the uvula or soft palate from rising freely to cover the nasal passages; when he has been taught to let these membranes rise and fall freely and naturally during the increasing as well as the diminishing of the volume of the voice, and in short, when he has learned to manage the pharynx as above described, to hold the refusing muscles of the throat in a relaxed

or passive condition, and to rely for vocal power, upon the action of the diaphragmatic and abdominal muscles alone, then he will be possessed of the essential capacities of a successful singer. This voice will be at once flexible and clear, mellow and elastic, round and ringing. For him to sing and for others to hear him sing, will be equally pleasant. As a result of his study, he will sing, not only without exertion, fatigue or injury, but even with positive benefit to his throat and voice.

If you look into the mouth and throat of a correct singer while he is in the act of prolonging the vowel ä, you will see that the base of the tongue is depressed with the laryngeal depression; that the body of the tongue is lying flat down, as it were lifeless, in the mouth; its tip resting loosely against the lower teeth, its middle depressed, and its back, as before alluded to, apparently swallowed down the throat. The arch in the back of the mouth will be found much elevated, and the soft palate or

uvula will have shortened and risen so much that it will hardly be found at all. When these physiological conditions are absent, the voice is at once recognized as an uncultivated voice. Its tones will be destitute of due firmness and will be distinguished by various particular defects. Such a voice will be cavernous and hollow, or mouthy and nasal, or guttural and veiled, or tremulous and harsh, or thin and wiry, or weak and lifeless, or limited in compass, etc., etc., or will exhibit several of these defects at one and the same time.

To remove these defects is the task of the master. He must know positively how to proceed, in order to eradicate severally all the faults or vices to which the human voice is subject; and at the same time that he removes old faults, he must prevent the growth of new ones. He must study to combine in every voice the greatest number of advantages and beauties with the fewest defects, and even these should all be obliterated. He must develop in his pupil as

much as the intelligence and co-operation of the latter will permit, a voice that is full and round, mellow and easy, clear and ringing. Such intelligence and co-operation are essential on the part of the pupil; and a moderate vocal endowment must be the gift of nature. In general, all that any teacher can do, is to train his pupils to use their throats correctly and to develop and improve to the utmost such capacities as nature has bestowed; and this he must at least be prepared to do. And the teacher therefore must of absolute necessity possess these qualities in his own voice before he can develop them in the voice of his pupil. For how can any man even explain to another that of which he is himself practically ignorant? How can he impart clear ideas without himself possessing and illustrating them? One may be a good teacher of singing without being a great musician in general. It is desirable indeed, that he should be a good musician, but beside that and above all, he must possess a practical

understanding of the voice, and must himself sing with a voice that has been educated and brought under the most perfect control. Any teacher, therefore, who is not a first-class vocalist or singer, never can be a first-class vocal teacher; for the most valuable knowledge is never merely theoretical; experience alone teaches positively. Moreover, the teacher should be a master of the art of voice-building, for otherwise he will not only fail to benefit the throat, or to obtain other satisfactory results; but by the continuously weakening effect of reversing the muscles of the throat, he will produce positive injury. Inflammation of the throat and consequent laryngitis and other disorders often result from this cause. To become a competent voice-builder or throat-reformer requires as much patient study and intelligent investigation, as to become a competent practitioner in any department of law or medicine; and he who makes a false show of learning in this or any other profession, should be recognised

as a quack and treated accordingly. It is not enough to possess, as many vocal teachers do, good ideas upon the subject of voice-building. It is necessary that all other than good and thoroughly tested scientific principles, the result of close acoustic analysis, should be systematically rejected.

A single wrong principle, consistently adhered to, may be productive of an infinite amount of mischief. In short, the interests entrusted to a vocal teacher in these days, bronchitis, laryngitis, etc., are so important, I may be permitted to say, so vitally important, that to trifle with them is malpractice and guilt, and should be crime. How many beautiful voices have been ruined everywhere by ignorant and injudicious teaching? How many healthy throats have been lacerated and weakened everywhere by forced throat-singing? How much even of hemorrhage and consumption have resulted from throat straining, aggravated by climatic or other causes, which otherwise would have been harmless?

It may not be unprofitable to illustrate some of the defective qualities of voice before enumerated. To illustrate all of them in the course of this condensed writing would be impossible. I will select, therefore, those which are most important or of most frequent occurrence. Yet even the slightest deviation from the natural and correct method of singing, as before described, is easily discernible by a well trained ear. Even those that have received little or no special education in this direction are capable of observing the result which they cannot explain, and when they hear a voice that is used scientifically and skilfully, they remark its natural quality, its obvious ease of action, its great power, and its beauty of tone.

A defective quality of voice, which has lately been much in fashion and which is destined, I fear, to remain so until voice-building is less neglected and better understood, is the tremulous voice. This quality

of voice may be the result of physical weakness, as it is in old age.

Affectation may seek and obtain it. Ignorant instructors often impart it. It is produced by a mild form of reverse action in the muscles of the throat, and the quality of the tone is generally more or less guttural. It consists sometimes in a forced and mechanical tremor imparted to the throat by simulated emotion. It is more often, however, caused by a slight stiffness of the tongue which prevents the free motion or oscillation of the rising and falling of the larynx. Such a voice seems to have no foundation, since it gives evidence of being in a tottering condition. It has never been established, or as they say in Paris, such a voice is not "*posée*,'. and therefore it is neither smooth nor steady. Steadiness and smoothness are to be the first results of correct vocal training. To listen to a tremolo voice is painful to the ear of musical taste; but to sing in this quality of voice, is injurious to the throat of the singer

and ominous of the brevity of his career. A distinction must be observed between the habitual thin-voiced and hence illegitimate tremolo, here condemned, and that legitimate full-voiced undulation which is the genuine result of real feeling naturally expressed. The latter is true, and hence not offensive; the former is untrue and mechanical. The habitual use of the tremolo in singing, whether in church or on the stage, is no more to be tolerated than is the continued use of the tremolo stop in the organ.

Next among defects of voice may be noticed a nasal quality. This offensive quality of the voice sometimes proceeds from organic defect of the vocal apparatus. It may proceed from disease, such as cancerous outgrowths in the pharynx itself, or its contiguous parts; or from undue enlargement of the tonsils, or simply from reverse action of the muscles of the throat, whereby the vibrations of the voice are more or less diverted from their

direct course and are sent through the nasal passages. Sometimes the nasal quality, or twang, so prevalent in this country, proceeds from a habit of inertness and indolence manifested in the use of the vocal organs, so much so, indeed, that this quality of voice is most frequently found in singers or speakers whose general habits and movements are of an inactive or indolent character. This quality of voice may therefore be termed indolent or lazy. Accordingly the cure of this defect is to be found in an increase of activity and movement of the muscles of the arch and soft palate. The latter must unfold and move aside and upwards, so as to allow the vibrating air-column to pass through the throat without obstruction and without being deviated through the nasal passages. Thus by closing and unclosing the nostrils during the act of singing or speaking, it is easy to observe the presence, absence, or degree, of the nasal quality in the voice observed.

Let us now pass on to another vocal de-

fect: namely, the guttural quality of voice. There is no other defect which is more mischievous or more prevalent. The guttural tone is produced by imparting a peculiar shape to the tongue during the emission of the tone. The tongue is raised nearer its base and curved upwards so as to produce a sort of camel's back hump. This obstacle prevents the free motion of the larynx, as well as the free emission of sound, without which a perfect musical tone is impossible. A guttural quality of voice may be presented in any degree of intensity, from the slightest and least injurious, to the most marked and intolerable.

There are, indeed, few voices, even among the so-called educated singers, which are throughout their entire range of lower, middle and upper notes, entirely free from this reversion; and who thus would present a quality of tone which is absolutely pure and faultless. The abnormal position of the tongue just indicated, obstructs the vibrating column of air which proceeds from the

vocal chords, and prevents it from striking the upper cavity of the mouth.

Thus little or no resonance is produced, but the vocalist seems to sing through a sponge or a sheet of cotton batting. Such a voice must necessarily be veiled, because part of the vibrating air is deflected against the posterior walls of the pharynx, instead of being directly emitted; it has therefore no ringing clearness nor any dramatic effect, and will evince a deficiency of overtones when put to the scientific test of acoustic analysis.

A throaty voice is unfit for the stage. It is wanting in elasticity, and therefore will often crack or break. It cannot execute with finish, and perfect clearness, and freedom of tone the *crescendo* or *diminuendo*. Singing in this manner is very laborious. The throat becomes quickly tired, and the singer exhausted. Hoarseness ensues, with lameness and aching of the throat. In the act of singing, the face grows red, and the neck is marked with swollen veins. More

or less serious disease of the throat often results from this habit. This form of reverse action is suicidal to the throat, and will, if persisted in, invariably oblige the singer to give up vocal practice altogether. The utter ruin of the voice by this mode of singing, especially with persons of delicate physique, is only a question of time.

The presence of the defect now under consideration, may always be detected, by simply feeling of the throat externally with a finger during the act of singing. If a sort of pigeon crop, or artificial double chin, is then formed by muscular compression just above the Adam's apple, or larynx; and if that part of the throat is then hard and stiff to the touch, instead of being relaxed and soft as when the voice is not used, then it may be safely asserted that the vocal organs are in the reversed or abnormal condition, and that the quality of the voice is more or less guttural, and, in addition, sometimes more or less wiry and harsh.

The number of speakers and singers ad-

dicted to this faulty mode of utterance is legion. The correction and eradication of this vocal defect is to be effected, and the requisite freedom of laryngeal motion, to be secured by simply relaxing or loosening the jugular ligaments till the lower jaw, the tongue and the larynx fall with the ease and liberty of a trap-door. This result is to be accomplished by the use of properly directed vocal gymnastics, during the education of the vocal organs. Sometimes a voice, which is otherwise correctly used, is exceptionally veiled in one or two notes; such an occurrence is wholly accidental and transient, and may usually be traced to some temporary physical disturbance.

It is not improper to mention, in this connection, that public singers who indulge in debilitating excesses must not expect to preserve, for any considerable length of time, the beauty, freshness or power of so delicate an organ as the human voice. It will sooner or later suffer the penalty of over-indulgence and dissipation. Nature's

laws in this case, as in all others, are never to be violated with impunity.

Much might be said concerning various other defective modes of using the throat muscles in singing, but enough has been shown already to indicate that positive knowledge respecting the normal and abnormal functions of the vocal organs should guide both singer and teacher, in order to produce satisfactory results.

After the singer or speaker has so developed his vocal organs that the throat muscles no longer offer any resistance in the emission of vowel sounds, be they open or closed, he is ready to begin the study of articulation. There are cases, however, in which it is advisable to study articulation and vocalization together. It is not necessary to speak at length concerning articulation with reference to the vocal mechanism; this subject is fully treated in standard works of elocution and philology. Suffice it to say that the articulation of consonants, which lies mainly at the orifice of the

mouth, is to be so directed in singing, as never to produce spasmodic contraction of the throat muscles, a result that is readily accomplished if the pharynx has been taught previously to act normally in the emission of simple vowel sounds.

Remembering the proposition with which we started, that correct singing is the result of art and study, let us recapitulate with fresh illustrations.

During the process of vocal education, the singer, desirous of fitting himself professionally, must acquire a clear intellectual and practical comprehension of freedom in the oscillatory motions of the larynx. He must discover that mysterious and generally ignored principle of voice-building, the passivity and the unconscious activity of the pharynx, which constitutes in reality the voice-instrument.

Assuming that the candidate for vocal excellence is endowed with the necessary mental qualifications, that he has a good memory both for melody and harmony,

that he has a great and genuine love for music, or in other words, that he is a good musician; assuming also that he is possessed of a good physical constitution, and is favored with a prepossessing appearance, and that he or she is willing and ready, at the proper age, to devote the same reasonable time which is thought necessary to become a proficient in any other art, he must then by art and study learn to govern his voice in the most perfect manner. He must subject it to perfect control.

With a voice so prepared, the singer will be able even to sing through an opera night after night, and that with positive benefit to the throat and to the general health. No voice should be considered well drilled which cannot pass this ordeal.

As the infant gropes into the world, weak and feeble, and as the perceptive and active faculties of a human being are in general weak, inefficient, and comparatively valueless in their untrained and uneducated condition; so, in particular, the human voice in

its native and untutored state, is tremulous, uneven, of small compass, thick, heavy, and more or less tinted with the peculiarities above condemned. It is the office of well-directed and persevering study to remove all defects, to destroy irregularities and inequalities, found in different parts of the voice, by uniting those differences erroneously called registers; to extend the compass of the voice by artistic and discreet management of the vocal machinery; to acquire classic rapidity of execution by allowing the free motions of the larynx; and to impart to the voice a correct intonation, freshness and steadiness, perfect mellowness, and that far-reaching and ringing intensity of sound which constitute the timbre of the voice.

A voice that is neither fresh nor steady, neither elastic nor powerful, and neither clear nor ringing, is neither musical nor cultivated. Such a voice has undergone bad training, or no training at all.

There is a science, as well as an art of

vocalization. In this particular also, the study of vocal music is not peculiar. In this study also, as in some others, truth-seekers are few in number. As in other professions, so in that of vocal instructor, self-assertion and ignorance, even in this enlightened nineteenth century, often prove more lucrative than the modesty of scientific knowledge. It is true of vocal study as it is of any other pursuit, that obstacles can be overcome, and success can be won, only by faithful and persevering work. The principal difficulties arise from the hidden character of the phenomena to be observed. The vocal organism is well nigh hidden from view. Much of the action, furthermore, of the organs concerned, is instinctive or involuntary. Physiological and functional changes are to be observed by secondary means, as for instance, by observing their effects upon tones emitted. In this manner the gradual unfolding and elasticity of the organs, as well as the entire pharyngeal diagnosis, is to be studied. The

right management of the vocal muscles is to be inferred from the daily increase of power to govern and direct the vocal organs. The success of voice-building or tone-forming, in a word, is to appear, on the one hand, in the increased number and aggregate of the natural motions of the vocal organs which are brought within the sphere of conscious and intelligent volition, and on the other hand in the correspondingly diminished number of movements and effects which are left to the unconscious and instinctive activity of the vocal apparatus. These inferences must be within the power of master and pupil alike; and the practical knowledge to be thus obtained must be analytical and complete. Here as elsewhere, error is easy, and truth is difficult.

A prolific source of error in vocalism is to be found in the assumption of so-called registers. This assumption is alike superfluous in art, and unfounded in nature. The perfection of any other instrument than the voice, is conceded to found on similarity of

tone and quality. For who would venture to speak of the chest-tones, medium-tones and head-tones of a good piano for instance? Yet ought not the voice, king of all instruments, to be more free from inequalities, divisions and demarkations than any other musical instrument? The assumption of registers in the voice, is the recognition of differences where nature and art alike demand that there should be none. It is the establishment, or rather the imposition, of differences, dissimilarities, and inequalities, where uniformity of tone is supremely necessary. Singers, whose voices have been trained on the assumption of registers, have presented themselves to me in the following conditions: the so-called chest-tones were invariably disagreeable throat or thick guttural tones; the medium tones were habitually either sharp, harsh or wiry, or they were weak and lifeless; and the head-tones were generally thin and veiled, or squealy and cutting. The very terms here used are a delusion and a snare. Register

are unscientific, false and impossible. The beginner is deceived and bewildered by them. His voice and mind, instead of being conducted along the plain highway of nature and science, are entangled in a labyrinth of difficulties and fallacies from which he may never emerge.

No adequate idea of the methods and principles here advocated can be obtained without particular observation of the process of correct vocal education. Such facilities for this observation as are to be found at the office of the writer, are freely offered to any one who will take the trouble to call there.

You will then observe that, in teaching how to use the voice successfully in singing, we indulge in but few of the notions most prevalent among the so-called teachers of singing of the present day, but that we rely wholly upon the requirements of nature, rightly understood, and upon positive science, strictly applied.

Let us, however, proceed a step further

with the so-called registers.....Take low D of the soprano voice. This tone is called a chest-tone; yet in the male voice, the identical tone is called sometimes a closed, and sometimes an open tone. Again take G on the second line of the treble-clef for the soprano; this tone is called a medium tone; yet in the tenor voice the self-same tone is called a chest-tone.

Here certainly is an anomaly. Indeed, as before observed, the term chest-tone contains in itself a delusion; for laryngoscopic investigation has long ago demonstrated that all sound is formed, as before explained, by the vocal membranes in the larynx, and no vocal sound is formed in the chest, nor ever can be. There are acoustic as well as optic illusions; for although I admit that differences of quality of tone or acoustic illusions, called registers, apparently exist in the untutored human voice, yet all agree that these differences should disappear in the perfectly trained voice. The mistake is to be found in the fact that

vocal teachers generally consider these changes an unchangeable reality; whereas they are an illusion and a defect. The register tones so-called proceed from allowing the throat muscles, mainly those in the pharynx, to change sympathetically their position during the process of emitting certain doubtful tones in the ascending or descending scale.

This change is to be distinguished from the natural and necessary change of the vocal chords. Thus, the changing of the throat or voice-instrument, if I may so express it, destroys the identity of tone, which should never be changed in its quality, nor altered in its nature. Another proof of the mistake in the assumption of registers may be found in the following fact: in the same proportion that singers reverse the normal action of the throat muscles, just in that same ratio do sudden changes of tone occur, and are falsely called registers. But so soon as the singer has learned to use his throat normally, and no more to stiffen its muscles,

so soon do all these defective changes disappear.

Indeed to call certain tones of the voice, chest-tones, from the fact that, in the production of them, the vibrations of the vocal membranes are communicated to, and felt in the lower strata of air in the lungs, is as though, on account of the trembling movement communicated to the bellows of the church organ by the use of the tremolo stop, we should proceed to denominate the tones of the organ so formed, bellows-tones.

Does it not seem more rational and true to consider the throat simply as conveying the soul's sentiments in song? Now does not the soul, with its ever varying shades of emotion, either rejoice or sorrow? Should not therefore all the tones of the human voice, properly wielded, be sung open when expressive of joy, or closed when expressive of sorrow, and be wholly governed in their shading according to the sentiments to be expressed? So persistently, nevertheless, are registers imposed, or as I should say,

inflicted upon every voice, however fresh and beautiful, and it is no great credit to the profession, that the voices of a majority of the so-called trained singers of the present day are at the best but illustrious ruins of what might have been. Every one of you has probably known by personal observation more than one instance in which a voice, that has given promise of a glorious career, has emerged from the vocal school as dilapidated and broken as the hopes that were built upon it.

Many other misconceptions like that already considered, and found embodied in the term registers, might be mentioned, explained and illustrated, did space allow. One, however, must here suffice. The *falsetto* voice is misconceived and misinterpreted as well by singers and teachers, as by musical critics. Alas! for this last named class, the so-called art-critics. With few exceptions, how sadly they themselves need to study the subject in which they criticise; especially when they undertake to criticise

the voice. But to return to our subject, the etymological and real meaning of the word *falsetto* is false tone. As such it is a tone used by unskilful male singers, to eke out the compass of their voices, when the forced, strained high notes give out. It is thus the supplement of an artificial defect. That such a tone is illegitimate, appears from the fact that it cannot be increased into the full voice. It is a bad counterfeit of the female voice, and does not belong to the instrument by which it is perpetrated.

This quality of voice, however, must *not* be confounded with the *mezza voce*, half-voice or diminished voice. The two qualities are distinct. The latter is always regarded by connoisseurs as the legitimate *falsetto*.

The latter differs from the former in being capable of being expanded or increased into the full voice, as well as of being diminished without cracking or wavering, and without changing the nature of the tone, that is without departing from its

fullness, like the diminished tone of any other instrument; and this result, in a broad sense, is, as previously explained, the particular object of voice-building.

The *mezza voce*, or half voice, properly understood by the singer, will insure the freshness, health and vigor of the vocal organs even to three score years and more. Sims Reeves to-day, although far advanced in years, outdoes all his tenor-rivals in England, and for no other reason than this. He never forces or strains abnormally his vocal organs, and seldom uses the full power of his voice.

The beauty of the voice largely consists in the ease with which it is used, that is to say, in the freedom of the breath, or motive power, in the facile action of the vocal chords, in the liberal expansion of the pharyngeal muscles, in the freedom of emitting all vowel sounds, be they open or closed, and in the easy, yet sharply defined, articulation of all consonants. When these facts are perfectly understood, and

when this ease of action is acquired, the whole vocal machinery works harmoniously together. Every shade of musical emotion is then easily expressed, and the wonderful melodies of the great masters are interpreted with pleasure and success.

This result might be deemed a sufficient reward for the study and application essential to its attainment. But there is a physiological and hygienic, as well as an aesthetic advantage in correctly using the voice. For while the spirit is pleased with the concord of sweet sounds, the body is not less affected through the surprising physical development, which results from the vocal gymnastics involved in the right vocal culture. The hygienic development of the vocal machinery involves exercise of the whole inner trunk of the body, and here as everywhere, stagnation is death, movement is life and health. Indeed, I beg leave to assure my readers, as the result of personal observation, that the effects of normal diaphragmatic develop-

ment, as exhibited in general improvement of health, and in the cure of special disorders, are such as need no medical learning for their discovery.

The proper vocal drill cures guttural voices, hoarse and harsh voices, and voices which are easily fatigued by reading, speaking or singing. In the same way, nasal voices may be rendered natural and pleasant; sharp or wiry voices may be rendered sweet and musical. The process of voice-expansion strengthens the throat muscles and lungs, enlargens the chest, and thus oftentimes removes a bronchial cough, cures incipient consumption, destroys unnatural and dangerous adhesion of the bronchial pipes and lungs one to the other; invigorates the mucous membrane of the throat, and hardens it against the effects of colds. Thus the respiratory organs are often saved from becoming the prey of fatal diseases. Such of the latter as are contagious may often be averted in this manner. On the other hand, by bad singing, and by

the reverse and spasmodic action of the muscles of the throat and the larynx, the circulation of the blood is impeded, or is maintained irregularly. The blood is excessively diffused and engorged in the surface veins of the mucous membrane of the throat and larynx, as well as in the veins that are visible on the outside of the neck. The throat, neck and face of the singer who strains his voice, become red, and the brain is disturbed by irregular nutrition. Hence proceed congestions, inflammations, hemorrhages, and other functional and structural disorders.

An inflamed condition of the throat, as the result of chronic contraction of its muscles, predisposes to many diseases. For the poisonous particles, or germs of disease, which are often to be found floating in atmospheric air, and which are always inhaled in greater or less degree into the lungs, find in an unhealthy mucous membrane congenial soil for the production of virus and the development of disease.

Further illustration of the subject, in its various ramifications, might be presented, if space would allow. It will be sufficient, however, for me to give briefly the history of a single case, calculated to show the value of vocal training in cases of incipient consumption.

Twenty years ago, a young man who was passionately fond of the art of singing, and whose mind had for some time dwelt inquisitively upon the phenomena and theories of that subject, began systematically to investigate and study the science and art of vocal culture. But his zeal in the practice of song being greater than his knowledge of hygiene, he, as many others have done, contracted a soreness and inflammation of the throat. Then came a cough, hacking and incessant. The least cold was followed by general prostration. A slight catarrhal and bronchial difficulty was aggravated to a degree that became alarming. Singing was followed by increased coughing. Running up a flight of stairs rendered him for a few

moments actually voiceless. In speaking he made use of only the lower notes of his voice. This difficulty, sometimes milder and sometimes more flagrant in its character, continued for a series of years. To these and the like symptoms were added mental depression and general distrust of society and all its belongings. Then a severe form of bronchitis and laryngitis set in, which was pronounced consumption, and the patient was directed by his physician to leave the Connecticut Valley and look for a more genial climate. Accordingly he started for Europe to seek for health by travel; and having not yet abandoned his study and pursuit of the vocal art, he hoped to be able to continue the investigation of the various theories concerning voice-building on the Continent.

In particular he resolved, if life and health were spared, to ascertain, so far as possible, the answer of this question, namely: What is the nature of the obstacles to the perfect emission of the voice; and what are

the ways and means to correct these obstacles? In other words: what does nature mean that we should do, and what not do, to use the voice correctly?

He was encouraged to hope for health sufficient for this undertaking by the consideration that, for at least four generations, consumption had been a disease unknown to his immediate ancestors.

The case thus briefly stated is that of your writer. He has now spent many years in an attempt to solve the question just stated. Many theories relating to the art of vocal music he has tested by experience, and the ideas on voice-building of the leading European masters, he has examined and compared.

He will perhaps be excused, therefore, for thinking that he has found in the thoughts that have been expressed in the course of this short writing, the solution of the question proposed. Beyond question he has found a restoration of strength, a new voice, and healthy throat and lungs,

and that too, without taking a drop of medicine.

Having thus learned by experience the important artistic and hygienic effects of correct vocal culture, he has taken this method of communicating to his friends and pupils, and the public generally, some of the ideas which he has gained through costly experience.

If, in so doing, he has contributed even a little to the advancement of true vocal art, and if, kind reader, he has succeeded in giving you even a small measure of enjoyment and profit, he will regard himself as being sufficiently compensated.

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